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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary****Application No.**

09/989,779

**Applicant(s)**

MILLER LL ET AL.

**Examiner**

KHAWAR IQBAL

**Art Unit**

2617

**Period for Reply** -- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 March 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 and 15-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 15-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-06)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed in the 3-8-11 Remarks have been fully considered but they are not persuasive. In response to applicant's argument that the reference Aizawa et al (U.S. Paten 6931238) fails to show certain features of applicant's invention (i.e. the first signal burst and the second signal burst comprise identical packets of a common message). Examiner very kindly directs the Applicant to reference Aizawa et al discloses a wireless apparatus see fig. 2 and 8 have a radio frequency switch control 107 in communication with the radio frequency switch 104, col.6, lines 7-9, the radio frequency switch control 107, col. 6, lines 10-14, for switching between the first and second antennas A-D, fig. 2, 8, col. 6, lines 27-33, in response to a predefined schedule 105, fig. 2 of a sequence of scheduled packet bursts (A timing control section 105 outputs a timing control signal to a switch control section 107 at time intervals preset in a timer 106. The switch control section 107 controls the switch 104 according to switching patterns, col. 6, lines 6-33), wherein the predefined schedule is scheduled by a base station fig. 2 and 8, wherein the sequence of scheduled packet bursts comprises a first signal burst received via the first antenna and a second signal burst received via the second antenna (col. 4, lines 25-40), In col. 4, lines 35-43, Aizawa et al discloses that when the antenna (A, B, C or D, fig. 1, base on different propagation paths) correlation is low, the data items transmitted from different antennas (A-D, fig. 1) are considered on the receiving side to be transmitted through different propagation paths (delay time). Accordingly, if a received level falls down of data transmitted from

some antenna (signal strength low), it is considered that another received level does not fall down of the same kind of data (i.e., identical packets) transmitted from another antenna having the low antenna correlation (receiving identical packets in both antennas). It clearly means Aizawa et al discloses the first signal burst and the second signal burst comprise identical packets of a common message.

Therefore it is believed the Aizawa et al discloses claim limitations.

Applicant(s) are reminded that the Examiner is entitled to give the broadest reasonable interpretation to the language of the claim. The Examiner is not limited to Applicant's definition, which is not specifically set fourth in the claims, *In re Tanaka et al*, 193 USPQ 139, (CCPA) 1977. Therefore, the previous rejection is maintained.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 4-13, 15-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Aizawa et al (6931238).

Regarding claim 1 Aizawa et al discloses a radio receiver comprising (fig. 2, 8):

first and second antennas (antenna A-D, fig. 2) connected to a radio frequency processing circuitry by a radio frequency switch (104, fig. 2); and

a radio frequency switch control (107, fig. 2) in communication with the radio frequency switch (104, fig. 2), the radio frequency switch control (107, fig. 2) for switching between the first and second antennas (antenna A-D, fig. 2) in response to a predefined schedule (105, fig. 2) of a sequence of scheduled packet bursts (col. 6, lines 6-33, see fig. 4-5, 7 and 11-14), wherein the predefined schedule is scheduled by a base station (fig. 2 and 8), wherein the sequence of scheduled packet bursts comprises a first signal burst received via the first antenna and a second signal burst received via the second antenna (col. 4, lines 25-40), wherein the first signal burst and the second signal burst comprise identical packets of a common message (see fig. 4, 7 and col. 4, lines 35-43 and col. 5, lines 53-59).

Regarding claim 4, Aizawa et al discloses the antennas are switched so that each antenna receives a related packet burst (col. 6, lines 6-33, see fig. 4-5, 7 and 11-14).

Regarding claim 5 Aizawa et al discloses a method of maintaining a controlled quality of service in a wireless communication system, comprising:

receiving by wireless transceivers scheduled communications from a transceiver at a transmission station in accordance with a predefined schedule of a sequence of scheduled packet bursts by wireless transceivers at receiving stations having switched protocol diversity reception operational modes, wherein the predefined schedule is scheduled by the transmission station to switch between a first antenna and a second antenna, enabling the first antenna to receive a first packet burst in accordance with the predefined schedule; enabling the second antenna to receive a second packet burst in

accordance with the predefined schedule, wherein the first packet burst and the second packet burst comprise identical packets of a common message; recording the received bursts as soft information in a storage medium; and combining the soft information from the first and second bursts into a single message (col. 4, lines 25-45, col. 5, lines 50-60, col. 6, lines 6-33, see fig. 4-5, 7 and 11-14, see detail in claim 1 above).

Regarding claims 6, 7 Aizawa et al discloses each packet burst contains a same complete message (see fig. 4-5, 7, col. 4, lines 25-40, col. 6, lines 6-33, see fig. 4-5, 7 and 11-14, see detail in claim 1 above).

Regarding claim 8, Aizawa et al discloses a method of achieving a quality of service control in a wireless local area network communication system, comprising:

transmitting a message contained within a plurality of packet bursts occurring at spaced time intervals, wherein a first packet burst and a second packet burst of the plurality of packet bursts comprise identical packets of a common message; and receiving each of the packet bursts individually at one of a plurality of antennas in accordance with a predefined schedule, where the predefined schedule is scheduled by a base station and is used to select one of the plurality of antennas for receiving each of the packet bursts (see fig. 4, 7 and col. 4, lines 35-43 and col. 5, lines 53-59).

Regarding claim 9, Aizawa et al discloses each of the plurality of the antennas is connected to a radio receiver at separate times relative to other antennas (col. 4, lines 25-40, col. 6, lines 6-33, see fig. 4-5, 7 and 11-14, see detail in claim 1 above).

Regarding claim 10, Aizawa et al discloses including a complete message within each packet burst (col. 4, lines 25-40, col. 6, lines 6-33, see fig. 4-5, 7 and 11-14, see detail in claim 1 above).

Regarding claim 11, Aizawa et al discloses a message is spread across the plurality of packet bursts by space-time coding (col. 1, lines 34-40).

Regarding claim 12, Aizawa et al discloses the transmitting combines a protocol with signal processing (abstract)

Regarding claim 13, Aizawa et al discloses a communication system for coupling a transmitter and a receiver adapted for receiving a first signal burst and a second signal burst by a first antenna and a second antenna respectively, and responding to the two signal bursts to communicate a single unified message at the receiver (col. 4, lines 25-40, col. 6, lines 6-33, see fig. 4-5, 7 and 11-14, see detail in claim 1 above); wherein:

the first and second signal bursts are sequentially separated in time in accordance with a predefined schedule, wherein the predefined schedule is scheduled by a base station, wherein the first signal burst and the second signal burst comprise identical packets of a common message (see fig. 4, 7 and col. 4, lines 35-43 and col. 5, lines 53-59);

the first and second antennas are sequentially enabled in accordance with the predefined schedule to communicate with a storage medium at the receiver (col. 4, lines 25-40, col. 6, lines 6-33, see fig. 4-5, 7 and 11-14, see detail in claim 1 above); and

enabling a representation of the single unified message by responding to the first and second signal bursts (col. 4, lines 25-40, col. 6, lines 6-33, see fig. 4-5, 7 and 11-14, see detail in claim 1 above).

Regarding claim 15, Aizawa et al discloses a common message is derived from the sequential signal bursts received by the first and second antennas (col. 4, lines 25-40, col. 6, lines 6-33, see fig. 4-5, 7 and 11-14, see detail in claim 1 above).

Regarding claim 16, Aizawa et al discloses that said enabling includes retaining the first and second signal bursts in said at least one storage medium and processing to deliver: the single unified message (col. 4, lines 25-40, col. 6, lines 6-33, see fig. 4-5, 7 and 11-14, see detail in claim 1 above).

Regarding claim 17, Aizawa et al discloses selecting a message from one of the antennas selecting a message from one of the antennas (col. 4, lines 25-40, col. 6, lines 6-33, see fig. 4-5, 7 and 11-14, see detail in claim 1 above).

Regarding claim 18, Aizawa et al discloses that said deriving the common message includes selecting a message from one of the receiving antennas (col. 4, lines 25-40, col. 6, lines 6-33, see fig. 4-5, 7 and 11-14, see detail in claim 1 above).

Regarding claim 19-20, Aizawa et al discloses notifying a transmitter at a transmitting end by a receiving end of a number of antennas and radio receivers at the receiving end (col. 4, lines 25-40, col. 6, lines 6-33, see fig. 4-5, 7 and 11-14, see detail in claim 1 above).

Regarding claim 21, Aizawa et al discloses upon reconstruction of a received message sending a message to a transmitting end to cease further message bursts



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(col. 4, lines 25-40, col. 6, lines 6-33, see fig. 4-5, 7 and 11-14, see detail in claim 1 above).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1,148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 2, 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aizawa et al (6931238) in view of Aaronson et al (US006363062B1).

Regarding claim 2, Aizawa et al fails to expressly disclose the use of a MAC protocol. In a similar field of endeavor, Aaronson et al discloses a radio system where the MAC layer schedules communication bursts (see column 4, lines 22-63) taking into account factors such as propagation delay between the different nodes, queuing of data and synchronization of the time transmitting from multiple nodes (see column 3, lines 22-30).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Aizawa et al with Aaronson et al to include the above MAC layer in order to use the advantages of a MAC protocol such as more efficient use of the spectrum at a given region as suggested by Aaronson et al (see column 3, line 66 - column 4, line 2).

Regarding claim 3, Aizawa et al fails to disclose that the RF switch control is a MAC processor.

In a similar field of endeavor, Aaronson et al discloses that the MAC algorithm should synchronize the time of transmitting from multiple nodes (see column 3, lines 22-29). Aaronson et al also discloses a radio system where the MAC layer schedules communication bursts (see column 4, lines 22-63) taking into account factors such as propagation delay between the different nodes, queuing of data and synchronization of the time transmitting from multiple nodes (see column 3, lines 22-30).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Aizawa et al with Aaronson et al to include the above MAC layer in order to use the advantages of a MAC protocol such as more efficient use of the spectrum at a given region as suggested by Aaronson et al (see column 3, line 66 - column 4, line 2).

### ***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KHAWAR IQBAL whose telephone number is (571)272-7909. The examiner can normally be reached on 9 am to 5.30 pm Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, KAMRAN AFSHAR can be reached on 571-272-7796. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. I./

Examiner, Art Unit 2617

/KAMRAN AFSHAR/

Supervisory Patent Examiner, Art Unit 2617